

18 June 44

In Great Industry of the West-riding.

The stranger who enters a Yorkshire 'clothingtown' will easily discover the sort of work that most of the inhabitants are engaged upon. He sees many waggons in the streets heaped high with great packs which he is told are full of wool. On all sides of him are very tall chimneys sending out black clouds of smoke, every chimney belongs to the long building with a flat front & many windows; most likely the building has three sides with a court or yard in the middle. Let him watch before he gets gone of these buildings at mid-day, he will see great crowds of people pouring out, hundreds, in some cases, thousands, of men & women, boys & girls. These are not like the smartly dressed people who pour out of church & chapel on a Sunday. The men & boys wear long blue frockcoats; the women, big white aprons that cover entirely their dresses. Never a bonnet is to be seen in the crowd; the women have hats & bonnets at home for Sundays as smart as anybody's; but, to-day, they all wear big shawls pinned under the chin hanging below the waists. There are a great many more women than men in the noisy throng which are streaming off into all the little streets near the mill. Two or three drop into every cottage to have a hasty dinner, & then back again to work at the mill. For these are the 'mill-hands' whose business it is to look after the great machines used in the combing, carding, drawing, roving, spinning, & weaving of wool. Every body knows that wool grows on the sheep's back & that our flannels & warm stuff gowns & coats are made of wool; Yorkshire children & doubtless

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I know that prepared virgin wool because it is various stuffs in the great business of their country.

But how does it happen that wool is used for this purpose? It might easily occur to any one to take the fleece as it comes off the sheep's back, to keep him warm, but to spin the short fibres of the wool into long threads, & to weave them into soft-stuffs, is quite another matter.

Wool is a sort of hair, yet hair could never be manufactured into close & soft cloth: the difference between wool & hair is, that each little fibre of wool curls up, not with a large loose curl such as we often see in hair, but with a very tiny curl or wave. Also, each curly fibre has jagged edges, being covered all over with scales, covering small that it is impossible to see them with the naked eye, or to feel them, but yet large enough to catch in one another. The natural curl of the wool fibres causes them to keep the twist they put in the spinning, while by their jagged edges, they hold fast to one another. Thus, in what is called the nap of broad cloth you cannot cut the threads crossing each other, all that is to be seen is a soft woolly surface; the way to feel that close surface is to feel & spummed the cloth in such a way that every little fibre becomes hooked by its jagged edges to other fibres. Thus, think how short each little wool fibre is & what an infinite number of joins there must be in a short length of yarn: how is it that this yarn is so strong & elastic & does not break at the joins? Just because the countless fibres that form it ~~do not~~ ~~and break at the joins?~~ lock together by means of their little hooks so that they are not quite easily pulled apart.

You think, perhaps, that the wool off the sheep's back is pretty much the same all the world over.

From that of Australia, is imported & he made into very fine soft-^{How} shawls. One upon a time a Yorkshire manufacturer who had not much money to spare sent his son to Liverpool to buy wool. Now at that time there ^{old little} was any in the yard of a Liverpool merchant of "green looking stuff" which now would buy. People came & turned it over & left it where it was, & the merchant did not know what to do with the 'naughty stuff' which had been sent to him from South America. By a happy chance, our young Yorkshireman turned into this merchant's yard: he pulled out a handful from the open corner for sale, "felt at it, smelt at it, did everything but taste it," & at last carried away a sample in his pocket: very soon he came back to that lucky Liverpool merchant, & bought up every bale of the useless stuff. And a new material for

useless stuff.
~~Very soon~~^{By and by} people heard of a new material for
dresses. called alpaca, a shiny, silky cool
stuff. most pleasant for summer wear; this
was what W. Titus Salt had made of the odd, curly
dirty wool he had picked up in that Liverpool
yard. It was the soft, fine, ^{silky} brown, not so black,
^{shiny} wool of the
Alpaca, a beautiful creature whose native home is in
the lofty mountains of South America.

Mr. Salt (who afterwards became Sir Lister Salt), made a great fortune by his discovery, the wealth made his work people to get the tempt by his wealth. He made up his mind to move them out of the close air of the crowded town to a lovely spot in the Aire valley. So here he built a very fine

factory, & a town ^{with} many streets of good houses, for his work-people, with schools, & a chapel & ~~many~~ schools, public baths & wash-houses, a park & an institute, & everything he could think of for the comfort & pleasure of his people.

In 1835, all were ready; and, on his eightieth birthday Mr. Salt led his people out of ~~Leeds~~ Bradford to their new homes with colours flying & hands playing; ~~then~~ ^{and with music} ~~the mill people took possession of~~ the bright little town of Saltaire. A bright fresh little town it is still, even the great-factory is not yet darkened by smoke; the two monster engines, bright & beautiful as a drawing-room clock, are kept in glass cases for the delight of the passers by; that is to say, the wheel of each engine may be seen through a huge sheet of plate glass.

Many kinds of stuff besides alpaca or made in this fresh factory; every kind of wool used in the woollen manufacture may be seen in the ^{immense} great warehouses. Here are bales, old-looking bales from India, packed in India matting, neat little square ballots of alpaca from Peru, workman-like bales from Germany; clumsy packages of mohair, cut from the mother's goat of Lybie; much ~~more~~ ^{fine} wool from South Africa; endless bales of Botany wool from Australia, wools from Austria, wools from Egypt.

But we must not linger any longer over these endless heaps of foreign wools which lie about in heaps ready for the sorter; we have yet to see all that is done to the wool before it passes into the hands of the dressmaker or tailor.

Inside a Factory

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We get ~~some~~ ^a manufacturer who has a large mill to be good enough to let us go over it.

As soon as we inside, there a hoist lifts us up to the top story of the mill, where the wool sorting is carried on, because the sorter wants a strong light from the roof so that he may see his wools well. We enter a large, bright airy room where the sorter stands at his large & easy work. He stands at a board, placed breast high before a window, upon which a fleece is spread, & with wonderful quickness of eye & touch, he sorts the hairs into sometimes a dozen different qualities, coarse, fine, finer, finest & so on. The wool sorter gets good wages because it is not everyone who can feel or see ^{though} any difference between the fibres of one handful of wool & another.

The next thing to be done is simple enough. The wool is thrown into a large trough, filled with hot water, & soap, where it is worked about with iron rakes until it is quite clean. Then, a "porcupine," a roller set with hooked teeth, draws it out of the water. It is dried by being spread over a wire grating beneath which great fans move to & fro making a draught of hot air.

Then, a plucker, set with crooked teeth, pulls out all the knots from the tangled apron ~~from~~ with which it is fed; other two or three preparatory machines make the broad apron of wool into a loose roll not bigger than a child's wrist, which is called a Sliver.

Next, the Sliver goes into the combing machine, a wonderful machine that can do a dozen different things with

with as much ease as a man & fifty times as
^{great}
~~much~~ neatness.

To understand how difficult it is to comb a ~~piece~~
 tuft of wool you must remember that it is
 unlike the combing of one's own hair in this -
 that the hair is fastened to the head so well that
 you may give a good hard tug to the comb
 without bringing it out. Now, the wool is loose
 at both ends; so the combing machine must
 hold fast one end of the tuft, & at the same
 time, comb out the loose end off. Then, the combed
 end must be held, & the tangled end combed off.
 When the tuft is combed at both ends it
 must be laid ^{as to over-cup the last tuft} ~~on to the block of combed wool~~
 the comb must be cleaned with a knife & the dirt
 & tangled ~~wool~~ refuse must be emptied into a
 can, & a new tuft of tangled wool must be
 seized ready for combing. All these actions,
 & more, are performed, by the ~~best~~ quick as thought,
 by a single machine. ~~which is worked by the turning~~
~~of a wheel,~~ & at last you see a lovely milk-white
 roll of ^{combed} wool pouring out into the can which is
 waiting to receive it.
 What is the use of all this combing & brushing -
 for there are little brushes as well as combs
 attached to the machine - ? Just the same use
 that it is to comb & brush your hair. When it goes
 into the combing machine, the wool is tangled
 & matted, not quite clean; when it comes out,
 all the little fibres of the wool lie straight & smooth
 side by side, & quite free from dirt. Before this wonderful
 & beautiful machine was invented all the wool-combing was
 done by hand, & a very tedious & very dirty kind of work
 was that of the wool-comber. Now, nothing can be cleaner, neater, &
 quicker than the work of this machine.

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But "combing" is not the only process by which the tiny, curling fibres of wool may be made to lie straight side by side. Carding is thought to answer better than combing for the finest kinds of wool, the fibres of which are very short & curly. He must form the carding room takes how this is managed - a large room, with, perhaps, a hundred great carding machines in it, standing in pairs, end to end, with a passage between them.

You think, perhaps, that a card is a card upon which the wool is wound. Nothing of the kind; it is an iron roller, set all over with steel wires, shorter & closer together than the hairs of a clothes brush. There is a large card, & numbers of smaller cards in a carding machine; the wool enters into the freely moving of the machine, & is drawn through the prickles of one card after another, until, after the last carding, every fibre lies straight even like the hairs of your head.

The soft cloud of wool, that leaves the machine after the carding, is pressed together & rolled & drawn by one machine after another, until it becomes a sort of soft cord, about the thickness of a candle-wick. It is then wound upon ^{the machine's} ~~spindles~~ ^{spindles} & is ready for the spinning frame. Fully a dozen frames does the slivers of wool go through, ^{however} before it is ready for the spinning frame & as each frame ^{presses} draws several ~~several~~ ^{several} slivers into one, & draws out that one until it is finer than any of the slivers of which it is formed, the wool is doubled many times while passing through these frames. Indeed, it is said, that, about a quarter of a million double

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take place before the wool is spun; and every doubling helps to stretch & arrange the short fibres, & so to scatter their ends that ~~it is hardly possible that~~ ^{not} two ends should fall together. This is very important, because if half a dozen ends came together, there would be a weak place where the yarn would easily break. Spinning Room.
And now, the carding, ~~the spinning~~ ^{the spinning} over, every little curling fibre lies straight & even, & is now ready for use. The next thing is to take a great many ends of the spindle & twist them into a thread or yarn such as you may see in the ravelings of a piece of stuff. The ravelings from a blanket are thick & coarse. Those from a piece of merino are very fine; & when so, the yarn must be spun of ~~different~~ ^{fine or coarse} thickness according to the use that is to be made of it.

Less than a hundred years ago the plan in the West Riding was for the worsted manufacturers to carry his wool round to the villages scattered in the dale. Some would be taken in ~~at~~ every cottage, the mother & girls would spin it into threads with a spinning wheel, in working such, the woman would keep the fibres straight with her hand, while the turning of the wheel would cause them to twist into a single thread. Each woman could spin only one thread at a time.

Upon notice how many threads cross each other in a piece of flannel, you will see this must have been rather slow work. A poor weaver, called Hargreaves, thought he too invented a machine called a spinning jenny which could spin eight threads at once, and, later, a Mr. Crompton of Bolton in

(in Lancashire)

invented the mule-jenny - a wonderful machine
which will keep ^{an immense number of} ~~a large number of~~ spindles at
work.

Now these machines do their work is too deep
a matter for us to explain. The great frames
stand in pairs all through the length of a very
large room. The machines do all the
spinning, better, perhaps, than if they had
senses. The work of the women & girls who
watch them is just to go from spindle
to spindle & to join any of the hundred
of threads which happens to break, & this they
do with a wonderfully quick wrist. Every
girl minds two frames, each frame contains
about ^{many} 120 spindles. The work is easy enough
& the spinners walk from end to end of their
frames as if they were quite at their ease, but
they must be on the watch every instant, or a
wful length of broken thread gets into.

The noise in this, as in all the other great
rooms of the mill, is quite deafening; you
cannot hear a word that is said to you, & must
in explanation
wait till you get outside. But no doubt
the operatives get used to this, & in the best mills
the noise is the most-unpleasant thing attending
the work.

A good deal of the yarn spun in the mills
is exported, & delightful it is to an orderly
mind to watch the operation of packing. The yarn
intended for this purpose is spun upon spindle
shaped paper cases which are taken off the frames as
they stand, & packed in large crates, row upon row,
end between ends, as neatly & closely as the cells
of a honeycomb, & then the whole is pressed together.